DOCUMENT RESUME

ED 034 982 AL 002 233

AUTHOR Topping, D. M.
TITLE Some Implications of Transformational Grammar for Language Teaching.
PUB DATE Jun 69
NOTE 18p.; Paper presented at the Regional Seminar of the SEAMEC Regional English Language Centre, Singapore, June 9-14, 1969

EDRS PRICE EDRS Price MF-$0.25 HC-$1.00
DESCRIPTORS *Deep Structure, English (Second Language), *Language Instruction, Language Universals, Linguistic Competence, Linguistic Performance, *Phrase Structure, Semantics, Structural Linguistics, Surface Structure, Syntax, Teaching Methods, *Transformation Generative Grammar, *Transformation Theory (Language)

ABSTRACT

This paper attempts to discuss some of the implications of transformational grammar for language analysis and language learning. The author covers the following points: (1) transformational grammar--some background and some claims, and some linguistic and psychological implications; (2) which, if any, of the claims of transformational grammar are germane to language teaching; and (3) how, specifically, some of these claims might be utilized by teachers of language. He concludes that the teacher should know the structure of the language he is teaching from a transformational grammar point of view. He feels, however, that not all the claims of transformational grammar (for example, linguistic universals) have relevance to language teaching. Some interpretation and selection are needed and must be supplied by the language teacher himself after he has made his grammatical study. The author concludes with a discussion of several areas where a transformational view of grammar might be of some assistance in second language teaching: (1) the phrase structure rules of transformational grammar can serve as a meaningful guide in selecting simple constructions for presentation before more complex ones, (2) transformational analysis can help determine which sentences are really more complex, and (3) it can show relationship of one structure to another. (DO)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

ED034982

Some Implications of Transformational Grammar For Language Teaching

D.M. Topping

This paper attempts to embrace a number of aspects of language, but not too many, I hope, to obscure the real point of focus, namely some of the implications of TG for language analysis and language learning. If I seem to be taking a circuitous route, it can be partially attributed to the fact that the path is not straight. More specifically, it is my plan to cover the following points: 1) Transformational Grammar - some background and some claims, and some linguistic and psychological implications; 2) what, if any, of the claims of TG are germane to language teaching; and, 3) how, specifically, might some of these claims be utilized by teachers of language?

We shall now look at some of the background and claims by means of a quick and necessarily superficial overview.

In my own lifetime, there have been at least three of what we might call "schools of grammar". These are typically called the traditional, structural, and generative-transformational schools. Each of the latter two assumed that it had something more or less definitive to say about language structure which its predecessor had treated wrongly or not at all. Since we cannot at this time review all of the major claims and positions, I would like to review just a few of the claims made by our more recent school of grammarians in order to evaluate their utility for language teaching.

AL 002 233

Let us look first at some of the claims of TG with consideration given to the linguistic implications.

TG	Structural
1. Emphasized distinction between Deep Structure (DS) and Surface Structure (SS).	1. Described SS (performance).
2. Treated language as an integrated whole.	2. Treated separate features of language: phonology, morphology, syntax.

3. Looked for universals in languages.	3. Looked for and emphasized diversity in languages.
4. Included semantic component in grammatical descriptions.	4. Relegated semantics to the lexicon.

Possibly the most important of these differences just mentioned is the distinction between DS and SS of language. Whereas the structuralists had confined themselves to describing the surface structures - or performance - of speech, the TG's felt that for a grammatical description to deserve the name, it should be a description of the speaker's competence - that is, of what he was capable of saying in his language. In order to describe this competence, it was necessary to describe the grammar in terms of the deep structures.

This distinction between DS and SS is very important to the TG point of view. While I do not wish to go into a detailed explication of this distinction at this time, I would like to call attention to a few of the implications. Item 1 on the handout shows a set of four phrase structure rules. From these 4 PS rules, we can generate a fairly large number of deep structures. Then, by the application of a finite number of transformation rules, we can generate an infinite number of unique sentences.

Item 2 on the handout illustrates the difference in the way structuralists and TG's might approach the description of language. Because the sentences are synonymous, they must be derived from a common source. The grammatical description must account for this.

There are some further linguistic implications in this distinction of DS and SS which should be summarized here:

1. Meaning is contained in the DS. Different surface structures which carry the same meaning (and use the same lexicon) are derived from the same DS. (Cf. Items 2, 4 and 5 on handout).

2. The relationships between synonymous structures can be explained by showing that they derive from the same DS source.

3. Ambiguous sentences can be accounted for and explained by examination of the DS. (Cf. Item 3 on the handout).

4. Mistaken structural similarity can be accounted for and explained by examination of the DS. (Cf. Item 6 on handout).

5. Recursion, or the principle of structure within structure, can be explained quite handily by the PS rules which provide the description of the DS. (Cf. Item 7, 8 and 9 for examples of recursiveness).

Now, let me recapitulate some of the major implications of this important distinction between deep and surface structure in a slightly different way:

1. Language has a DS which is often different in form from the SS.
2. Meaning is contained in the DS.
3. A small number of PS rules can describe the DS.
4. Surface structures usually consist of rearrangements and reoccurrences of the elements of the DS.
5. For a grammar to be adequate, it must take all of these things into account and provide a description of them, a description whose rules will enable us to generate an infinite number of SS.

Universals. A further linguistic implication of the new ideas fostered by TG is that concerning universals of language. The traditional grammarians had, of course, looked for universals of language too, usually those which had been found in Latin and/or Greek. The features of case, tense, and mood, for example, were included in the early descriptions of Tagalog, Chamorro and other non-Indo-European languages when, in fact, these features did not actually exist. Or, if they were acknowledged not to exist, then the language being described was declared "deficient" to a degree directly proportionate to the absence of those features.

TG has, in a sense, come back to where grammarians were 300 years ago. Recent studies and thought seem to suggest that there probably are some universals of language structure, certain features that are inherent in every language because of the inherent nature of language itself. The universals that the TG's are discovering are not exactly of the same nature as those of the traditionalists, namely case, gender, number, etc. Rather, the universals that are now being studied are such things as noun, verb, reflexivization, clause embedment, and recursiveness, all of which can be presumed to exist

in all languages, and which are analyzed in the DS and not in the SS. To over-state the case a bit, the TG's are working from an assumption that all languages have similar basic DS; the differences lie on the surface.

Semantic Component. A final linguistic implication of TG that I will mention here is the inclusion of a semantic component in the grammar. And, I should add here that this is the real frontier of TG, and only preliminary explorations have been made. Item 10 on the handout shows the type of sentence, the unacceptability of which can be explained by the inclusion of explicit semantic rules in the grammar.

Psychological Implications. I would like now to turn briefly to what we might call the psychological implications of some of the claims of TG, which must necessarily derive from the linguistic assumptions themselves, namely: (1) A language consists of a relatively small number of DS; (2) these DS are transformed into SS by the systematic application of a finite number of T-rules; and (3) an infinite number of SS can be generated from a very small number of DS by the application of a relatively small number of T-rules. Surface structures are derived by a series of processes; underlying this series of processes is a system of rules. Two key words here are system and process.

The psychological implications, which have been discussed in works by Lenneberg, Brown, Ervin, Chomsky and others, are: (1) Human beings do not learn their native language solely through mimicking and memorizing surface structures that they are taught or happen to hear. The number of SS that an infant is exposed to during his language forming years is enormous, and the surface structures he is likely to hear are varied to a degree which is impossible to estimate; (2) language competency comes from the internalization of a few DS rules of the language and the slightly larger number of T-rules which provide for the processing of deep structures into surface structure sentences. In short, the theory implicit in TG is that language is not a set of habits at all, but is the result of the deliberate application of cognitive processes to a finite set of rules that have been learned. This concept stands in sharp contrast with the statement so often expressed by structural and applied linguists that "language is a set of habits."

Philosophical Implications. I beg your indulgence for a moment so that I may touch upon the philosophical implications of some of the claims of TG. Again, I go back to some basic assumptions of TG: 1) There are probably certain universal features found in all languages which are discernible in the DS; 2) Deep structures are rearranged by processes called transformations in order to produce surface structures.

And now some questions: 1) If the basic components of the DS of all languages are alike or even similar, how can we account for the fact? 2) If the SS of the languages of the world are the product of the application of an organized system of rules, how do we account for this system of organization? The answers to these questions are by no means clear or conclusive. Perhaps they belong in the area of speculation. That is why I have called these "philosophical implications."

According to Lenneberg (1960), all humans possess "an innate drive for symbolic communication." Symbolic communication among humans usually takes the form of oral language. To quote from Lenneberg a bit further:

> For the time being, it seems more in line with other biological theories to regard the beginning of speech as the manifestation of an innate pattern, released and influenced by environmental conditions; and not as a purposive or pleasure-seeking piece of acquired behavior. (1960)

Since human beings share a more or less common physiological structure - including brain structure - and psychological structure, is it not reasonable to assume that they would share a more or less similar capacity for language? The ability to formulate deep structures should not vary much from one human being to another. This corresponds with the notion held by the TG's that there exist universals in DS, that languages do not vary as much in their DS as had formerly been believed. Similarly, the innate capacity for applying the processes - or transformations - to the DS is also shared by all human beings, and is not something that has to be learned. Specific rules must be learned, but the capacity for applying the processes is there.

Stated in another way, every human being who has not suffered physical injury to his speech-producing mechanism, is born with the capacity for

producing language at a certain stage during his maturation. Even though he may hear a great variety of sentence types during his pre-speech period, he will begin to produce sentences of a predictable structure at a more or less predictable age. His sentences will be very much like, if not identical to, the sentences produced by the other members of his speech community of his same age. The language he produces is not an exact imitation of what he has heard; rather, it is the output of a set of words and rules that he has induced by using his own innate language-producing mechanism.

TG Theory and Language Teaching. After this cursory review of some of the claims of TG, I would now like to turn to the original topic of this paper: which of the claims, if any, are germane to language teaching? Does TG have anything new for the language teacher that he didn't know before? I will first attempt to answer this question in a very general way.

A Grammar for the Teacher. Every teacher of language needs a theory of grammar. It is not sufficient that he merely speak the language. We expect the math teacher who teaches the multiplication tables to know something more of mathematics than the multiplication tables. Should we not expect the same of the language teacher? Furthermore, should we not expect the language teacher to know the grammar that tells him the most about the language he is teaching? Transformational grammarians claim that their grammar does just this. And, we have seen some evidence, I think, in favor of their claim. The conclusion: language teachers should know the structure of the language they are teaching from a TG point of view.

Let me make one point clear: I am not talking about teachers of grammar. I am talking about teachers of language. I am saying that the teacher should know the grammar of the language before he teaches such deceptively simple sentences as "It's a ball."

Specific Points of Irrelevance. Now, what about the specific claims of TG? Are they germane to the problems of the language teacher?

I am only too willing to concede that some of the specific claims that I have mentioned are not relevant to language teaching. For example, the practice of converting DS's to SS's could be a ridiculous and confusing waste

of time. If, for example, we attempted to follow rigorously the TG analysis of sentence 3a on the handout, we would have to teach strings like "Linguists linguists transform can be difficult" before we could proceed to the desired SS "Transforming linguists can be difficult." While it may serve well as a rigorous grammatical description, it certainly does not always serve as a model for teaching purposes.

The concept of linguistic universals and the inclusion of the semantic component in the grammar have also been mentioned among the claims of TG. Do these concepts have any relevance to the language teacher?

Since linguistic universals seem to exist in the DS, and since we have already concluded that we cannot restrict ourselves to teaching deep structures, we are probably as well off without the concept. And, while the semantic component in the grammar may help us explain why the sentence <u>His character admired the teacher</u> is unacceptable, it is not of much help to the teacher whose student produces such a sentence. It would seem that this type of problem can best be handled through vocabulary study - memorization - and I'm afraid that the TG's have no easy replacement for that.

Thus far, I seem to have implied that the claims of TG have little or no relevance to language teaching. If so, that was not exactly my intention. I was merely trying to point out that <u>all</u> of the claims of TG, which may be valid for grammatical analysis, may not be directly transferrable into the language teacher's world. Some interpretation and selection are needed, and must be supplied by the language teacher himself after he has made his grammatical study. I will expand for a moment or two on this matter by suggesting some specific areas where a transformational view of grammar might be of some assistance in second language teaching, particularly in the selection and sequencing of the materials to be taught.

It has long been an accepted principle of second language teaching that in the beginning stages we should use relatively uncomplicated constructions. Ideally, it might be argued, we would begin with the simplest meaningful utterances in the language. That this principle has gained wide acceptance is

evidenced by the number of language texts that begin, on page one, with "Hello" or "Good morning" or "Bon jour", "Magandang umaga", "Selamat pagi", and so on ... the greetings, most of which are usable, meaningful, and simple in their structure. But, in most instances they do not offer a structure from which to construct analogous utterances. They are useful in a limited sense, but not for building a language foundation.

If we adopt this notion of presenting simple constructions first before moving on to the more complex ones, then the PS rules of TG might serve as a meaningful guide. A quick look at the 4 PS rules on the handout will show us that the simplest kind of English sentence they will produce is the intransitive sentence consisting of a simple N as subject and a simple verb as predicate, with the underlying AUX deleted. Examples of such sentences are: "People laugh", "fish swim", "Jesus wept", and so on, all of which illustrate the simplest sentences that can be derived from our PS rules. I don't think anyone would argue that these are appropriate sentences to begin the learning of English. Hence, we cannot argue that simplicity should be the sole determining factor for proper sequencing in the beginning stages. Other matters must surely be considered, such as meaningfulness to the learner, utility of the structure being learned, appropriateness for age group, and many other factors. Still, the concept of progressing from the simple to the more complex should not be ignored. And here I return to our basic PS rules for guidelines.

According to our PS rules, sentences like "It's a big ball" and "This is a small table" are considerably more complex than sentences like "The boy can read" or "The teacher put the book on the table", or even "The teacher can tell a story to the students", all of which can be generated from the basic PS rules without the application of a single transformation. By contrast, the first two sentences - "It's a big ball" and "This is a small table" both require the application of the adjective transformation and the copula T., which provide us with <u>SS segments</u> which are not found in the native languages of most of our students. I am not arguing or recommending that the example sentences that I have given should necessarily be included in Lesson 1. What I am suggesting is this: If we assume the principle that we should start with

simple constructions and progress to the more complex ones, then the PS rules of TG can serve as a guide to help us determine just what is simple as opposed to something more complicated. And, it is my belief that sentences which do not require the application of transformational rules are simpler than those which do. Hence, it would seem more feasible to begin with utterances which can be generated from our basic PS rules alone, utterances which do not demand the application of T-rules before they can emerge as acceptable sentences. But, again, let me state that simplicity should not be the sole criterion.

If the PS rules of TG provide us with the simplest sentences in the language, what about the more complex ones, namely those that require transformations? It is my contention that a transformational analysis of the language can help us to determine which sentences are really more complex than others, rather than which sentences <u>appear</u> to be more complex. The following three sentences will help illustrate: 1. John can throw the ball.

2. John will throw the ball.

3. John threw the ball.

Most English teachers, I believe, would conclude that the last sentence - "John threw the ball" - is the simplest of the lot. But, according to our TG analysis, it is structurally the most complex because it requires the tense transformation and the auxiliary deletion transformation, while the first two sentences require none.

If we accept the premise of teaching simple constructions before complex ones, and if we accept the notion that strings which require no transformations are simpler than those that do, we should teach sentences like "John is throwing the ball" and "John has thrown the ball" well before we teach the simple past tense form, "John threw the ball."

Now, this may sound rather far out, and perhaps it is. But, if it succeeded in inculcating the pattern which shows that the first element of the VP is the only one which carries the tense marker, then it might help prevent such constructions as "John could went" and "John had threw the ball", patterns which are all too familiar to anyone who has ever taught English as a second language.

To reiterate, if we accept the premise of moving from simple to complex structures, then teaching the simple past tense of main verbs before teaching patterns which contain an auxiliary constituent is in direct violation of the premise. The sentence "John threw the ball" requires at least two transformations. "John can throw the ball" and "John could throw the ball" require none. On the strength of this, I am suggesting that our notions of what constitute simple and complex verb constructions need to be re-examined.

Another example of progression from simple to complex, in transformational terms, is in the relationship of adjective modifiers to relative clauses. This example may seem even more heretical than the preceding one. According to our TG analysis, the sentence (11a) "Girls who are pretty win contests" is simpler than the sentence (11b) "Pretty girls win contests." Item 11 on the handout is a tree diagram which shows the DS for both of the sentences. In order to get the string containing the relative clause - Girls who are pretty - a single transformation is necessary, which replaces the second of the identical NP's with the relativizer "who". In order to generate the other sentence - "Pretty girls" - it is necessary to apply two additional transformations, one to delete the relativizer and copula, and another to permute the verbal and the noun. The fact that the phrase "pretty girls" is shorter than "girls who are pretty" does not mean that it is any less complex. Indeed, according to at least one TG view of grammar, it is more complex.

Let us turn briefly to another matter, that of showing relationships of one structure to another, which would seem to be a highly desirable goal in language teaching. Too often in language texts, the target sentences appear to have been chosen at random, or because the structure is one of those high-frequency items, and therefore should be taught. What is often overlooked is the fact that seemingly different surface structures may be very closely related to a single deep structure, and the native speaker selects one of several possible surface structures to convey the information. The native speaker is subconsciously aware of these similarities; the learner needs to be shown these similarities. Once he has learned the basic similarities between them, then presumably he has learned more about the system of the language and can proceed to make his own choice of surface structures from

those available to him within the system.

The relative clause-adjective relationship is one example of the kind of relationship I have in mind: seemingly different surface structures with a common DS, both of which mean the same thing, and which offer the speaker a choice of utterances. Another example of this can be seen in the so-called Extraposition Transformation. (Cf. Sentences 12 and 13 on handout).

12. That my uncle likes to gamble is a well known fact.

13. It is a well known fact that my uncle likes to gamble.

One more example of relatedness, which should be emphasized in a language text, can be seen in sentences 14, 15, and 16, which reflect the relative clause, the infinitive and the gerundive transformations respectively:

14. That he gambles is regrettable.

15. For him to gamble is regrettable.

16. His gambling is regrettable.

We mentioned earlier that TG can help to show where seemingly similar structures are quite different in terms of the DS of the language, and therefore in terms of the system of the language. This aspect of language is just the converse of what I have just been talking about, and is equally important as a concept which should be incorporated in a language text. Look at the following set of sentences (17, 18, 19) which are given with alternate a and b forms:

17a. He likes growing orchids. b. He likes to grow orchids.

18a. He likes growing children. b. He likes children who are growing.

19a. He likes amusing stories. b. He likes stories that amuse (him).

A surface description of the a set of these sentences would suggest that they share identical structures. But, the alternate b forms show conclusively that they do not. What is needed, it would seem is for the language text to include material which would give special attention to the fact that in seemingly identical surface structures, the constituents stand in a different relationship to one another, and are therefore derived from different DS. Until the student has learned this, he has not begun to understand the system of the language.

Let me suggest one more specific example of a concept which is given particular attention in TG, and which should be incorporated in a language text, particularly for intermediate and advanced students. This concept, generally called recursiveness, is not by any means the exclusive property of TG. Other grammars have certainly taken it into account. But, I feel that TG has succeeded in clarifying the powerful generative capacity of this feature more succinctly than other grammars.

Stated simply, it is this: long, complex, well-formed sentences are nothing more than the result of repeated applications of a very small set of T-rules to an even smaller set of PS-rules. Two examples will suffice to illustrate this principle. (See items 20 and 21 on the handout).

20. I know the family that lived in the house that stood on the corner where we played when we were kids.

21. Raymond told himself to remind himself to scold himself for forcing himself to gorge himself on a hot fudge sundae.

I am not suggesting that either of these is a model sentence which could be held up as a standard for students to learn. The point here is that sentences 20 and 21 are grammatical, or well formed, and each of them consists of 5 simple sentences, or DS, which have been combined to form a single surface structure through the repeated or recurring application of 1 or 2 basic transformations in each case. Both sentences could be further expanded by continued application of these transformations. In principle, if the speaker is able to control relatively simple constructions such as "I know the family that lived there," and "Raymond reminded himself to eat," then he can, by repeated application of precisely the same transformations, produce sentences like 20 and 21. It is the recursive element that is inherent in the language that constitutes the important lesson here.

The examples that I have given are merely suggestions of the types of things which may help reveal the system of English that need to be explored more fully, and possibly worked into language texts. To my knowledge, there are few, if any, texts for English as a second language that have been developed along these lines. This situation suggests that there exists a

kind of credibility gap between linguistic theory and applied linguistics, a gap that I would hope to see closed in the very near future.

Finally, I would like to call attention to one more of the implications of TG for language teaching - possibly the most important one. Earlier in this paper I have used the terms system and process when referring to the way in which the TG views grammar. Language is a system which can be described by reference to a small set of basic unchanging rules. The outputs of these rules are rearranged by a series of processes, or transformations, to generate an infinite number of sentences.

If this is a reasonable description of language and the way it operates, it seems that these factors should be taken into account when teaching language. Instead of relying on endless, monotonous repetitions of surface structures, simple substitution drills, and the like, might it not prove more fruitful to design language texts and present them in a manner that is more in keeping with the way language works and the way human beings use language?

I am convinced that a language text that presents the students with the opportunity to exercise his innate ability to organize language - namely the cognitive processes that work in organising his own language system - will be a much greater stimulus to the learner than a text which simply requires him to repeat and memorize. We may go a step further and generalize that if the proper intellectual stimulus is there, the performance will be much more satisfactory.

Let us remember that we are trying to teach a system of language... not a large number of examples of it. A language text that does not provide for this aspect of language learning is better suited for parrots than for people.

HANDOUT

D.M. TOPPING

1. Basic Phrase Structure Rules (from Peter S. Rosenbaum, "Phrase Structure Principles of English Complex Sentence Formation," Journal of Linguistics, Vol. 3, pp. 103-118, 1967.

I. $S \longrightarrow NP \quad AUX \quad VP$

II. $VP \longrightarrow V \left(\left\{\begin{matrix} NP \\ PP \end{matrix}\right\}\right)\left(\left\{\begin{matrix} PP \\ S \end{matrix}\right\}\right)$

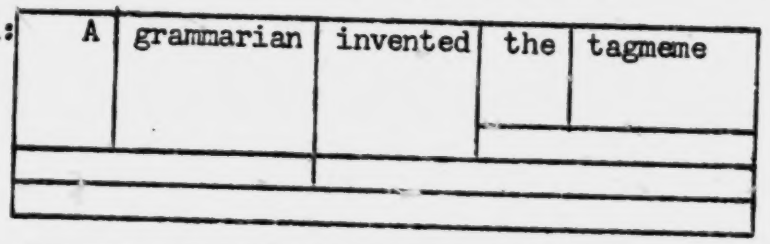
III. $PP \longrightarrow PREP \quad NP$

IV. $NP \longrightarrow (DET)\ N\ (S)$

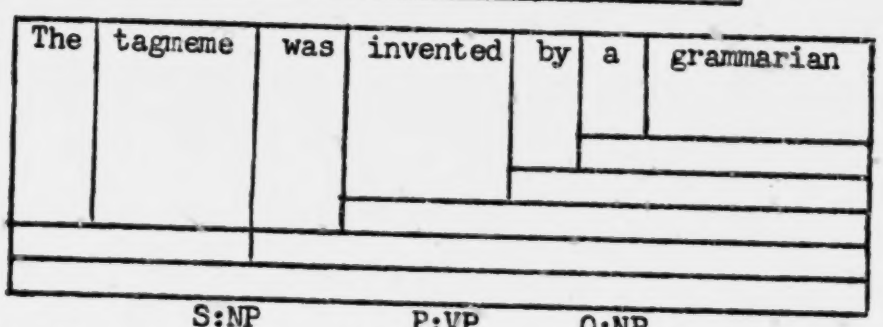
2. Sentence 1: A grammarian invented the tagmeme.

Sentence 2: The tagmeme was invented by a grammarian.

IC Analysis of S1:



IC Analysis of S2:



Abbreviated Tagmemic Analysis

	S:NP	P:VP	O:NP
S1.	A grammarian	invented	the tagmeme.
	S:NP	**P:VP**	**Ag:PP**
S2.	The tagmeme	was invented	by a grammarian.

AL 002 233

Transformational Analysis:

PS Rules

1. $S \rightarrow NP + VP$
2. $VP \rightarrow VB + NP$
3. $NP \rightarrow Det + N$

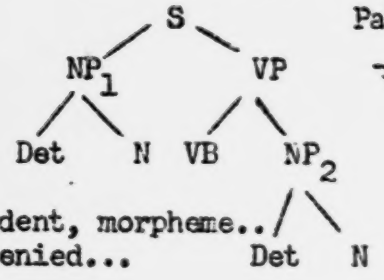
Topt. $NP_1 + VB + NP_2 \Longrightarrow$

$NP_2 + be + VB + by + NP_1$

Lexicon: N = linguist, tagmeme, student, morpheme..
VB = discovered, praised, denied...
Det = a, the

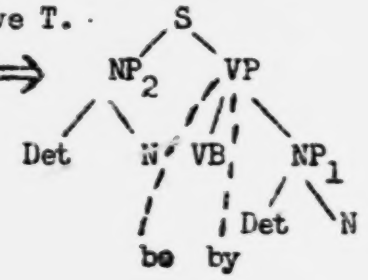
Tree Diagram

Deep Structure



Passive T. $\Longrightarrow$

Surface S.



3. Transforming linguists can be difficult.

IC Analysis:

Transforming	linguists	can	be	difficult

S:NP P:VP M:Adj

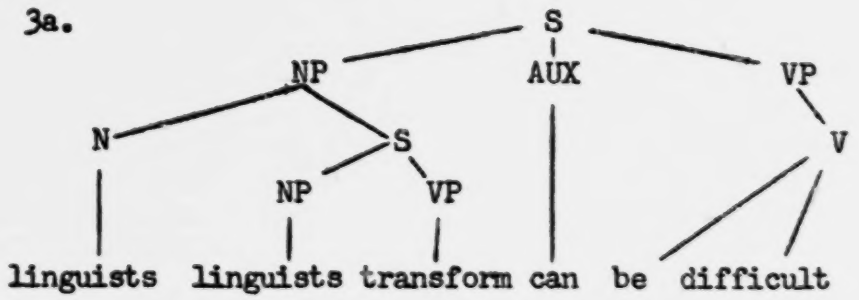
Tagmemic: Transforming linguists can be difficult

$NP = Mod:\frac{Part.}{VB} + H:N$

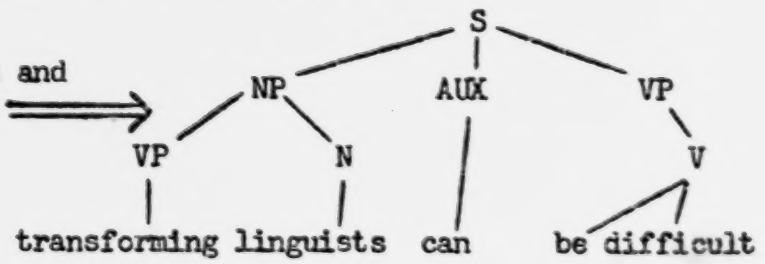
VP = Aud:modal + V:cop.

Transformational:

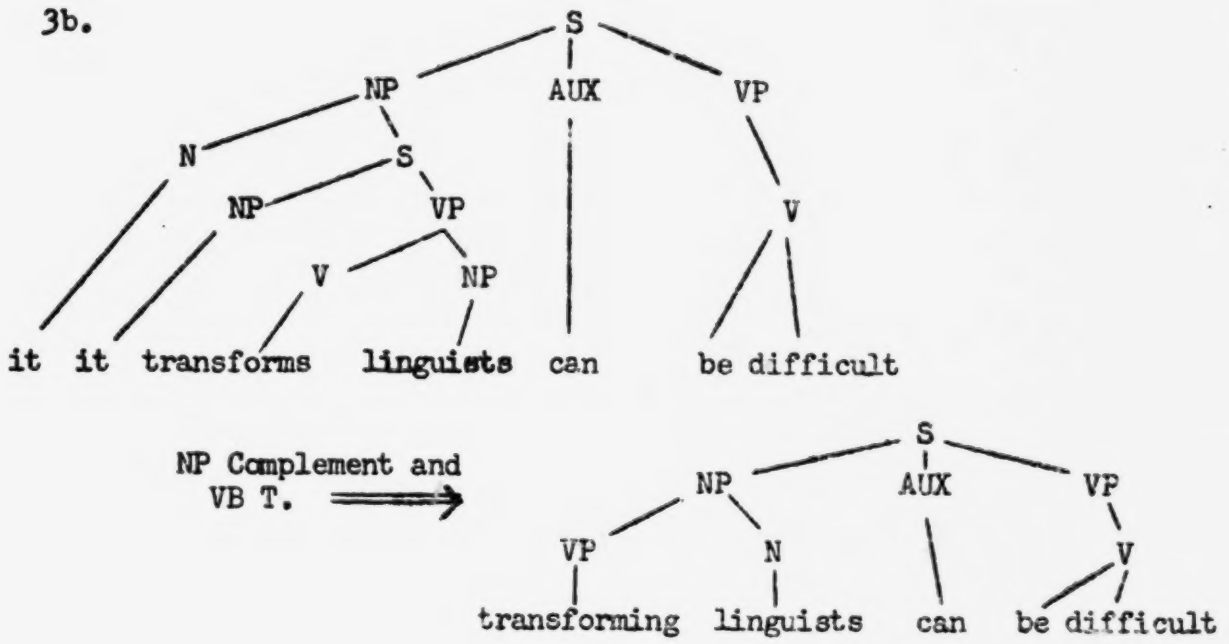
3a.



Relative Clause and Participial T. $\Longrightarrow$



3b.



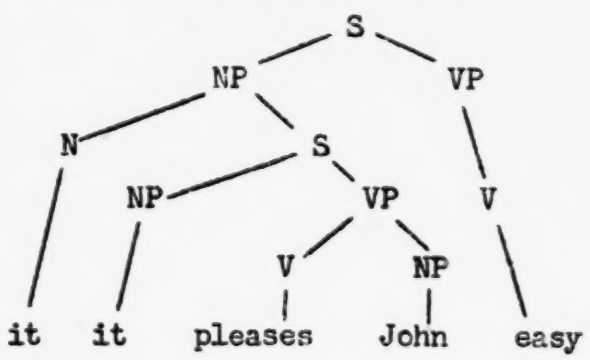
NP Complement and VB T. ⟹

4a. Some astrologers believe that the stars control fate.
4b. That the stars control fate is believed by some astrologers.
4c. It is believed by some astrologers that the stars control fate.
4d. It is believed by some astrologers that fate is controlled by the stars.

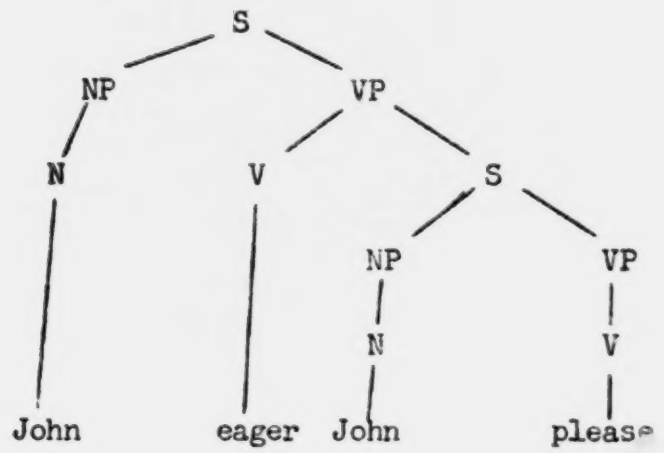
5a. That he ate the durian surprised everyone.
5b. For him to eat the durian surprised everyone.
5c. His eating the durian surprised everyone.

6a. John is easy to please.
6b. John is eager to please.

Tree diagram for 6a:



Tree diagram for 6b:



7. I will convince you of the fact that I reminded Richard of the rumor that Spiro wears a toupee.

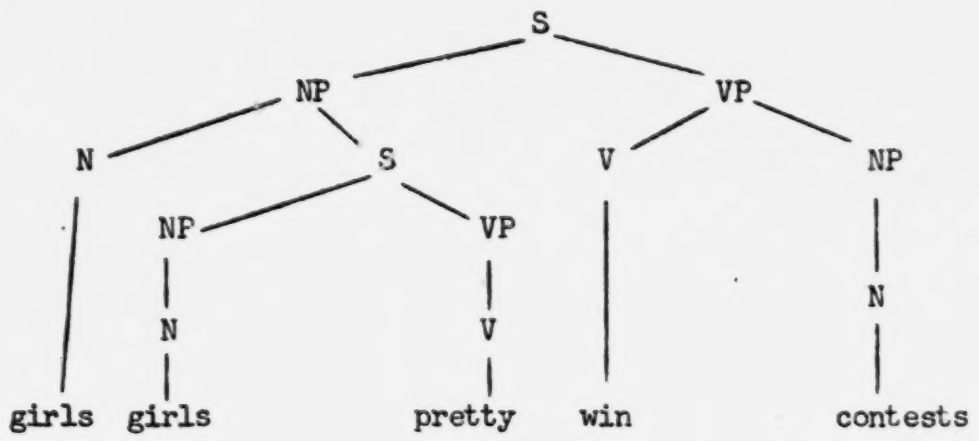
8. The students who you met who come from Taipei are friends of mine.

9. The man who the boy who the students pointed out recognized is my friend. (Adapted from Chomsky, Aspects of the Theory of Syntax, 1965.)

10. *His character admired the teacher.

11a. Girls who are pretty win contests.
11b. Pretty girls win contests.

Diagram showing DS for 11a and 11b:



12. That my uncle likes to gamble is a well known fact.
13. It is a well known fact that my uncle likes to gamble.

14. That he gambles is regrettable.
15. For him to gamble is regrettable.
16. His gambling is regrettable.

17. He likes growing orchids. 17. He likes to grow orchids.
18. He likes growing children. 18. He likes children who are growing
19. He likes amusing stories. 19. He likes stories that amuse (him/someone).

20. I knew the family that lived in the house that stood on the corner where we played when we were kids.

I knew the family.
The family lived in the house.
The house stood on the corner.
We played on the corner at that time.
We were kids at that time.

21. Raymond told himself to remind himself to scold himself for forcing himself to gorge himself on a hot fudge sundae.

Raymond told Raymond.
Raymond reminded Raymond.
Raymond scolded Raymond.
Raymond forced Raymond.
Raymond gorged Raymond on a hot fudge sundae.

WORKS CITED

Chomsky, Noam. Aspects of the Theory of Syntax. MIT, 1965.

Lenneberg, Eric. "Language, Evolution and Purposive Behavior," in Culture in History: Essays in Honor of Paul Radin. S. Diamond, ed. Columbia, 1960.

Rosenbaum, Peter S. "Phrase Structure Principles of English Complex Sentence Formation," Journal of Linguistics, Vol. 3, pp. 103-118, 1967.